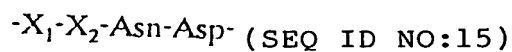


- 10 -

B¹
5 defined below. The discovery of such a sequence will enable the engineering of peptides and polypeptides capable of being processed in a plant by cleavage of the protease sensitive sequence. According to this aspect of the present invention there is provided a protease sensitive peptide comprising the amino acid sequence:

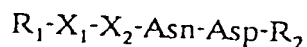


10 wherein X_1 and X_2 are any amino acid but are preferably both Lys residues. The protease sensitive peptide may also be represented as:



15 wherein X_1 and X_2 are preferably the same and are preferably both Lys residues and wherein R_1 and R_2 are the same or different, any D or L amino acid, a peptide, a polypeptide, a protein, or a non-amino acid moiety or molecule such as, but not limited to, an alkyl (eg methyl, ethyl), substituted alkyl, alkenyl, substituted alkenyl, acyl, dienyl, arylalkyl, arylalkenyl, aryl, substituted aryl, heterocyclic, substituted heterocyclic, cycloalkyl, substituted cycloalkyl, halo (e.g. Cl, Br, I, F), haloalkyl, nitro, hydroxy, thiol, sulfonyl, carboxy, alkoxy, aryloxy and alkylaryloxy group and the like
20 as would be apparent to one skilled in the art. By alkyl, substituted alkyl, alkenyl and substituted alkenyl and the like is meant to encompass straight and branched molecules, lower ($C_1 - C_6$) and higher (more than C_6) derivatives. The term "substituted" includes all the substituents set forth above.

25 In its most preferred embodiment, the protease sensitive peptide is:



30 wherein R_1 and R_2 are the same or different and are peptides or polypeptides and wherein X_1 and X_2 are both Lys residues.

- 11 -

Such a protease sensitive peptide can be placed between the same or different monomers so that upon expression in a suitable host or *in vitro*, the larger molecule can be processed to the peptides located between the protease sensitive peptides.

5

The present invention also extends to a nucleic acid molecule comprising a sequence of nucleotides which encodes or is complementary to a sequence which encodes a protease sensitive peptide comprising the sequence:

Sub B2

10

-X₁-X₂-Asn-Asp- (SEQ ID NO:15)

wherein X₁ and X₂ are preferably the same and are most preferably both Lys residues. Such a nucleic acid molecule may be part of a larger nucleotide sequence encoding, for example, a precursor polypeptide capable of being processed via the protease sensitive sequence into individual peptides or monomers.

15

The protease sensitive peptide of the present invention is particularly useful in generating poly and/or multi-valent "precursors" wherein each monomer is the same or different and directed to the same or different activities such as anti-viral, anti-bacterial, anti-fungal, anti-pathogen and/or anti-predator activity.

20

Although not wishing to limit this aspect of the invention to any one hypothesis or proposed mechanism of action, it is believed that the protease acts adjacent the Asn residue as more particularly between the Asn-Asp residues.

25

The present invention extends to an isolated type II serine PI precursor from a plant wherein said precursor comprises at least three PI monomers and wherein at least one of said monomers has a chymotrypsin specific site and at least one other of said monomers has a trypsin specific site. Preferably, the PI precursor has four, five or six monomers and is encoded by the nucleic acid molecule as hereinbefore described. The present invention also extends to the individual monomers comprising the precursor. The present invention also extends to a hybrid recombinant PI precursor

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